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Description of bioremediation of soils using the model of a multistep system of microorganisms

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Abstract

© Published under licence by IOP Publishing Ltd. The paper deals with the development of a mathematical model describing the interaction of a multi-step system of microorganisms in soil polluted with oil products. Each step in this system uses products of vital activity of the previous step to feed. Six different models of the multi-step system are considered. The equipping of the models with coefficients was carried out from the condition of minimizing the residual of the calculated and experimental data using an original algorithm based on the Levenberg-Marquardt method in combination with the Monte Carlo method for the initial approximation finding.

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